Mastitis: Reducing the Challenge to the Cow

Fact! In over 60% of herds throughout Nova Scotia, mastitis is the second most common reason for cows being culled annually…at a rate of just under 15% (ADLIC 2006 Annual Production Report).

At best, for just a few days, a single case of sub-clinical mastitis can reduce milk production by 1.5 pounds of milk/cow/day (@ 200,000 cells/ml) or 3 pounds milk/cow/day (@ 400,000/ml); however it could last throughout the whole lactation. At worst, it could mean the loss of the cow/heifer. Either way, it costs you money. Conversely, SCC may be low but it doesn't mean mastitis or an infection isn't there!
Nearly all new infections are preventable but in order to know how to tackle a problem, you must know what you are faced with. It is important to test milk samples to know which bacteria are causing the majority of infections.

Environmental Mastitis

Clinical signs:

Strep. uberis infection

- Sudden onset, hard, swollen quarter
- Clots in the milk
- Body temp often raised (>39˚C (102.2˚F))

E. coli infection

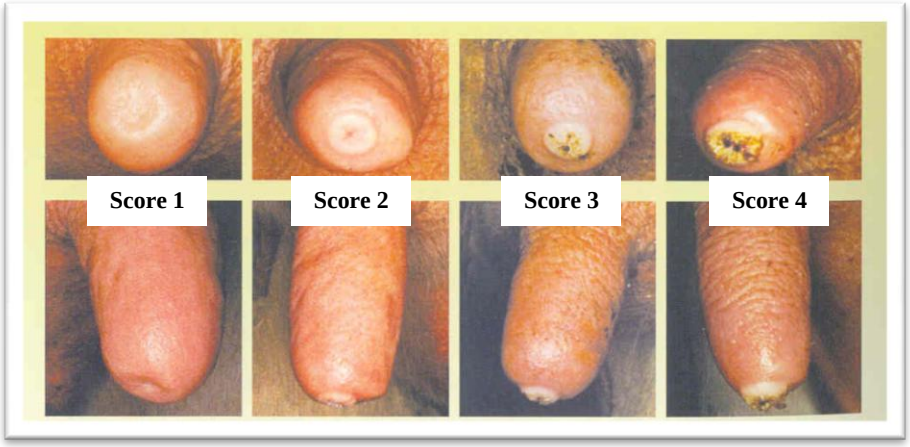
- Variable from mild to fatal
- Swollen quarter and clots in the milk
- Often a yellow, watery secretion in the milk
- Often clinical signs but no pathogens identified in the milk. The response within the cow can be rapid with the bacteria being eliminated in 12-36 hours

Contagious Mastitis (staph aureus)

Clinical signs:

- Chronic mastitis with low (<25%) response to treatment
- Mild/moderate swelling in certain quarters
- Quarters dry up during lactation without clinical signs
- Infected quarters flare up and become clinical every 2-4 weeks

Mastitis is caused by pathogens entering the udder through the teat canal (therefore minimizing this is key to reducing infection). Often this is caused by poorly maintained or incorrect settings on the milking equipment causing lesions or cracks on the teat.



Source: Animal Sciences Group at Wageningen University, Lelystad.

Take time to score teats right after the clusters are removed at milking. Make a note of the trend in score. If there are 20% or more with a score of 3 or 4, then immediate actions are necessary. *Staph aureus* organisms, which can be impossible to eradicate, colonize abnormal teat ends and teat lesions.

Initial actions:

- Have a dynamic test done on the milking machine
- Make sure liners fit the cow properly and that they are replaced as per the manufacturer guidelines

Acute *Staph aureus* infections generally occur in late lactation or just before calving as the teat canal begins to open and milk starts to drip. During the dry period, the teat canal is sealed with a keratin 'plug'. However, for around 10% of cows, this plug does not form completely, increasing the risk of infection and mastitis. In order to dramatically reduce this, calving pens and yards need, above all, to be dry and clean. Pathogens thrive in damp conditions and also where there are cleansings from when other cows have calved, generating a build up of bacteria.

Reducing Mastitis

Supplementation of the diet with vitamin E and selenium, vitamin A and beta-carotene, and balancing dietary copper and zinc content to meet requirements have reduced mastitis. Vitamin E levels of at least 1,000 IU/day during the dry period and 500 IU/d during lactation are beneficial.

Additional methods of reducing mastitis infections:

- Cows should stand on clean concrete for at least ½ hour following milking to let the teat orifice close
- Ensure regular scraping and cleaning of concrete areas – the amount of slurry on cow's feet is closely related to fecal contamination on udders
- Handle cows quietly to minimize soiling of legs, udders and flanks
- Dry cows off abruptly. Poor drying off techniques can increase the number of pathogens in the udder
- Milk high SCC cows last to minimize cross-contamination

- Fresh cows are best milked first
- Take the cow's temperature to determine a potential infection. Not all mastitis is physically obvious

Reducing infections via bedding materials:

- Straw yards are associated with *strep uberis* mastitis. Straw bedding must be dry and free from fungi & mould
- Mats and mattresses reduce the potential challenge from environmental bacteria
- Sawdust carries a high risk if allowed to become wet or if stored in damp conditions
- Washed sand is the least likely to become heavily contaminated with mastitis pathogens. The depth should be 15-20cm in yards and 5-10cm in cubicles. New sand should be added weekly

Remember, your vet is the ideal person to help you with the diagnosis and treatment of mastitis, but please give us a call to help with nutritional and practical advice on preventing mastitis.

For more information, please contact:
Dan Mosley, Dairy Specialist
(902) 896-0277

AgraPoint's Ag Info Centre
1-866-606-4636